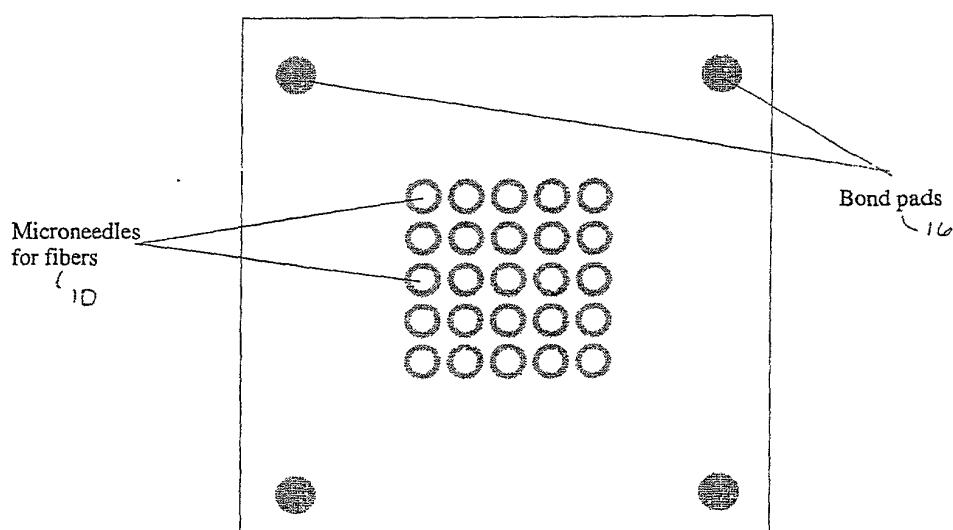
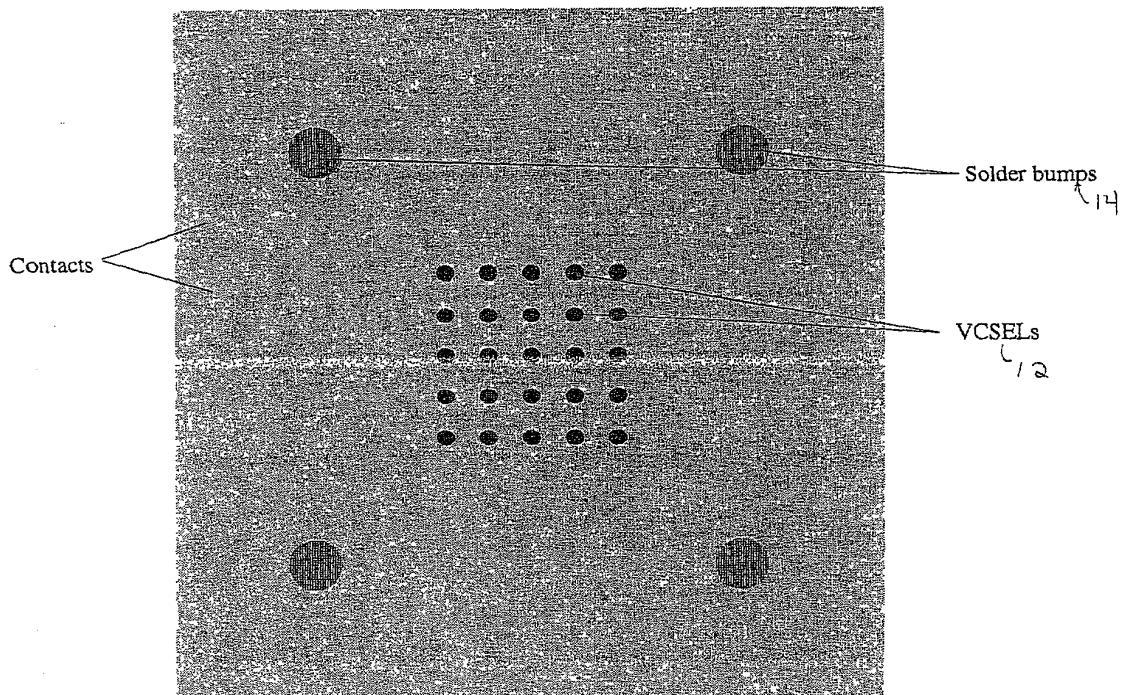


## Flip chip components



## Flip Chip Assembly Drawing

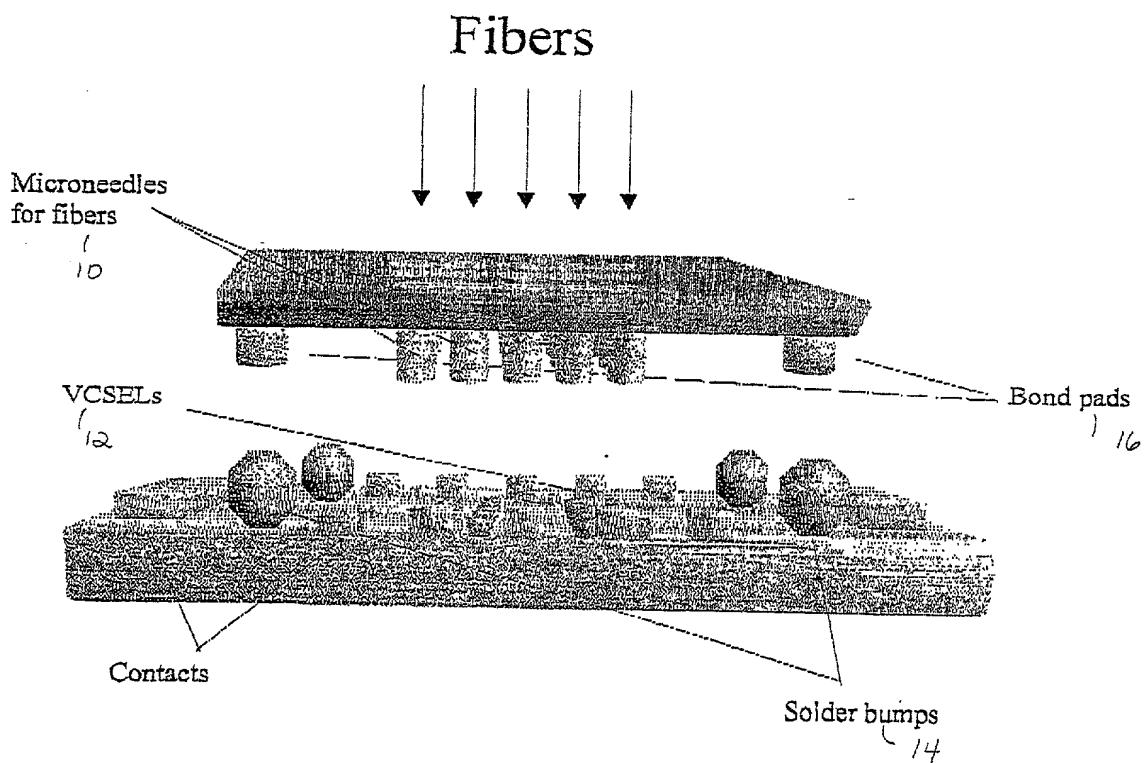


Figure 28

### Metal Microneedle Fabrication Process

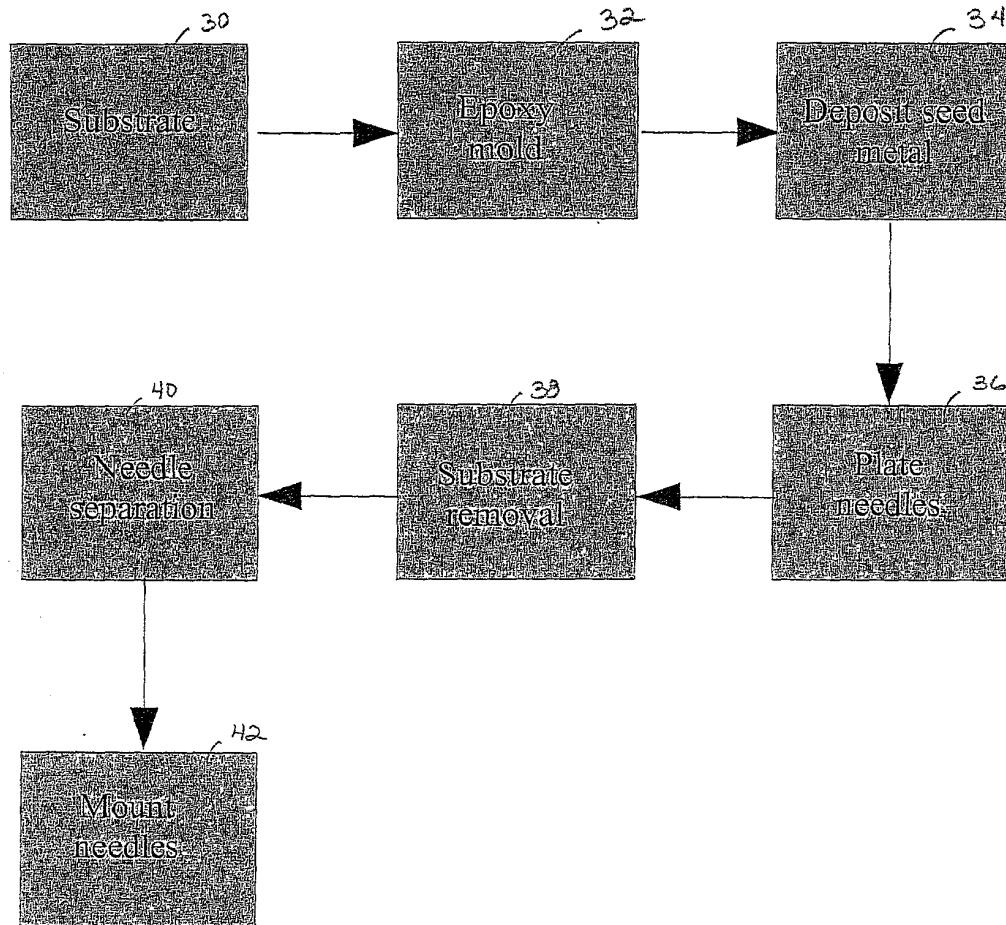


Figure 3A

Fiber/VCSEL Assembly Process

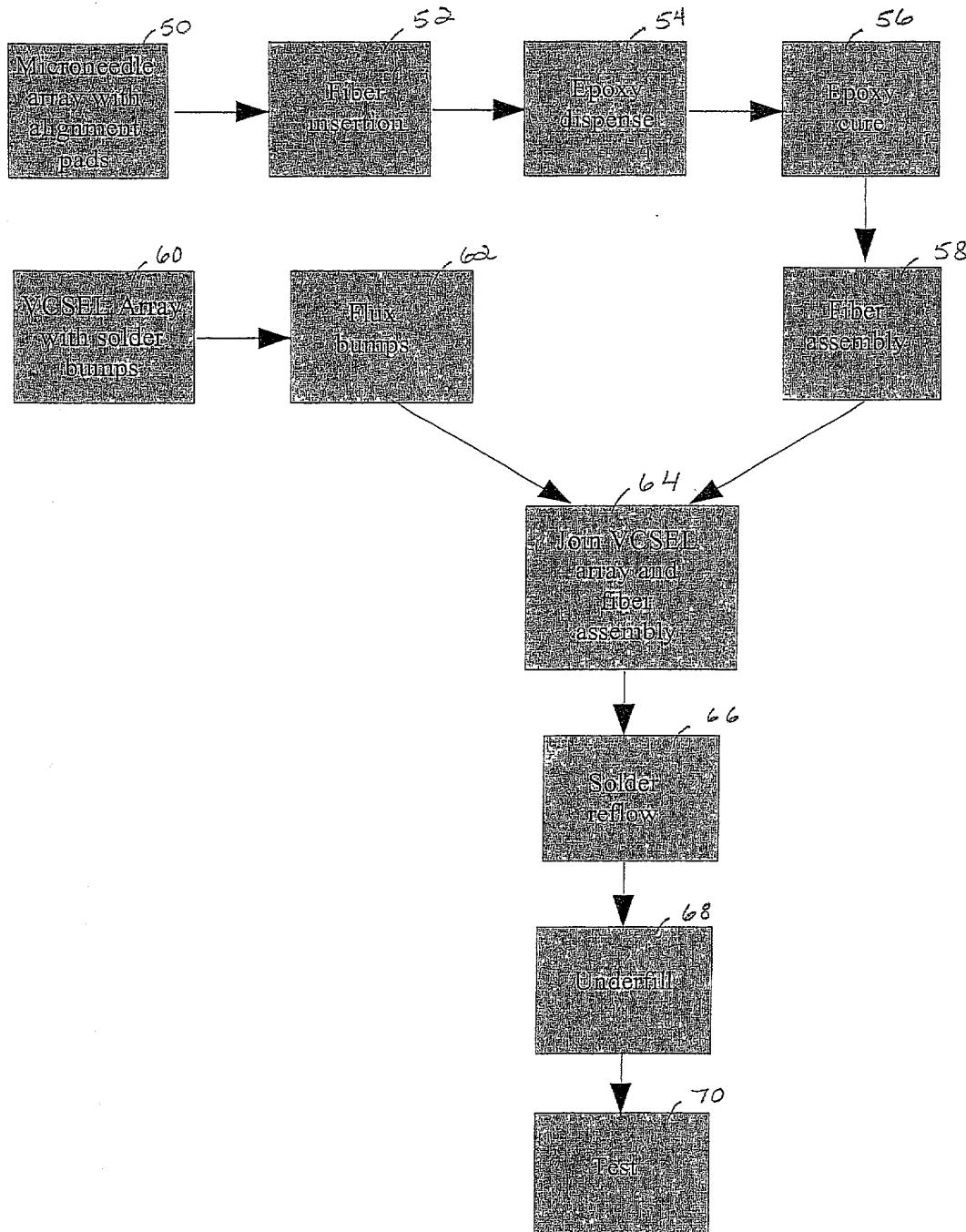


Figure 3B

## Fiber Assembly Cross-Sections

Fiber in Needles

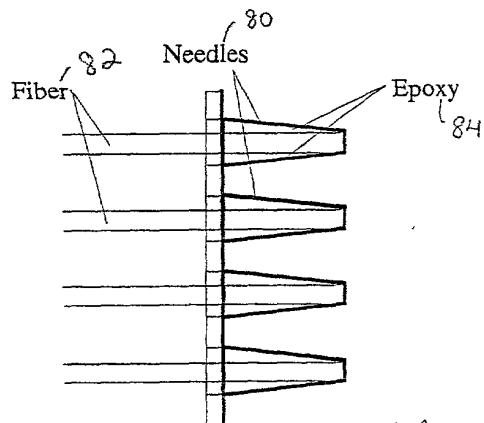


Figure 4A

Fiber w/ Epoxy Plug

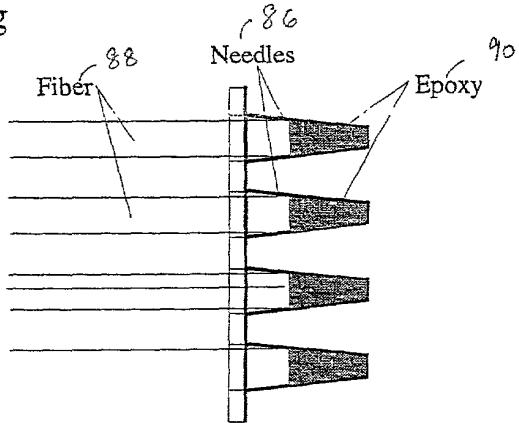


Figure 4B

Fiber w/ epoxy lens

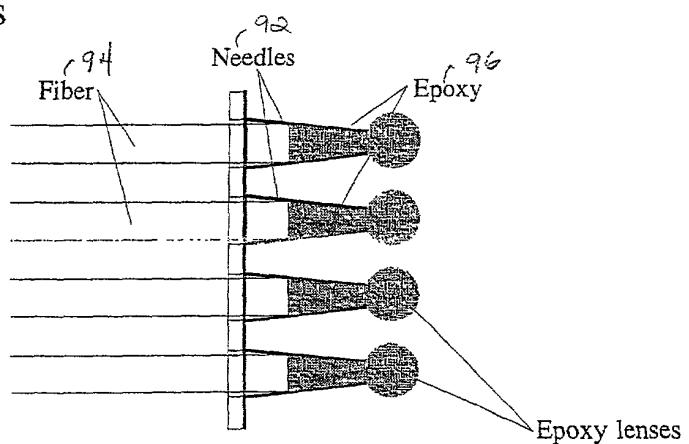


Figure 4C

Fiber w/ graded epoxy lens

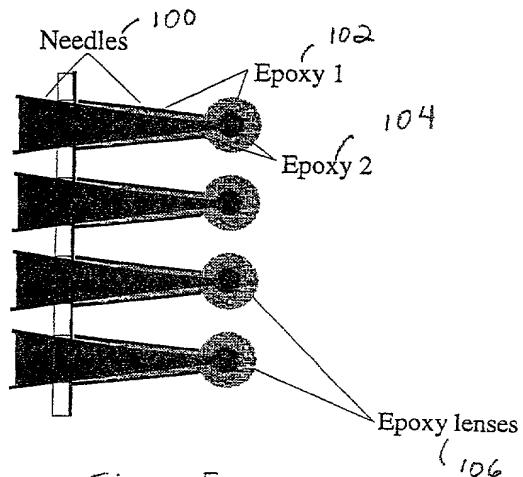


Figure 5

Micro-extrusion

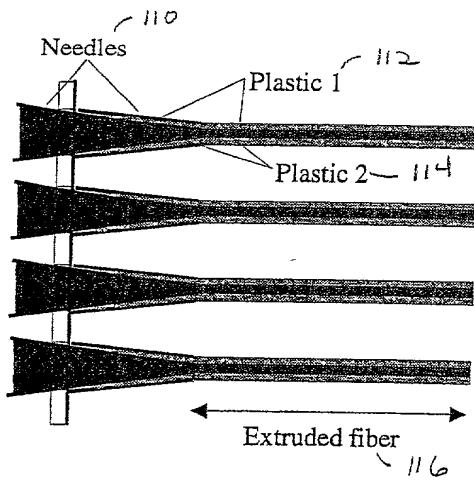
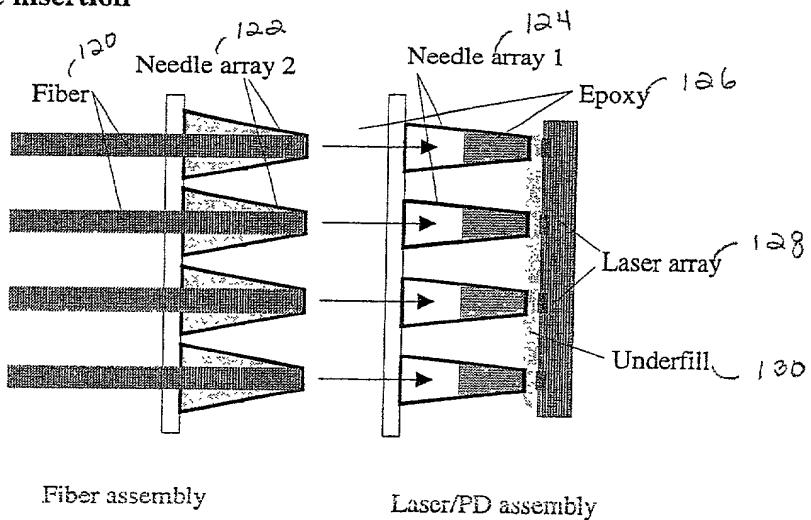


Figure 6

## Connector-Fiber to Laser

### Before insertion



Fiber assembly

Laser/PD assembly

Figure 7A

### After insertion

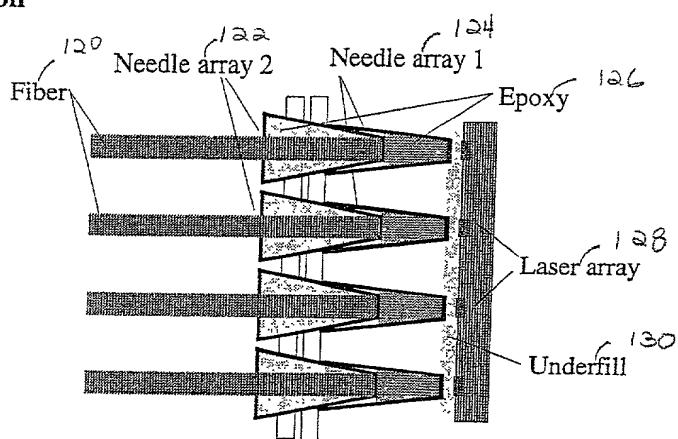
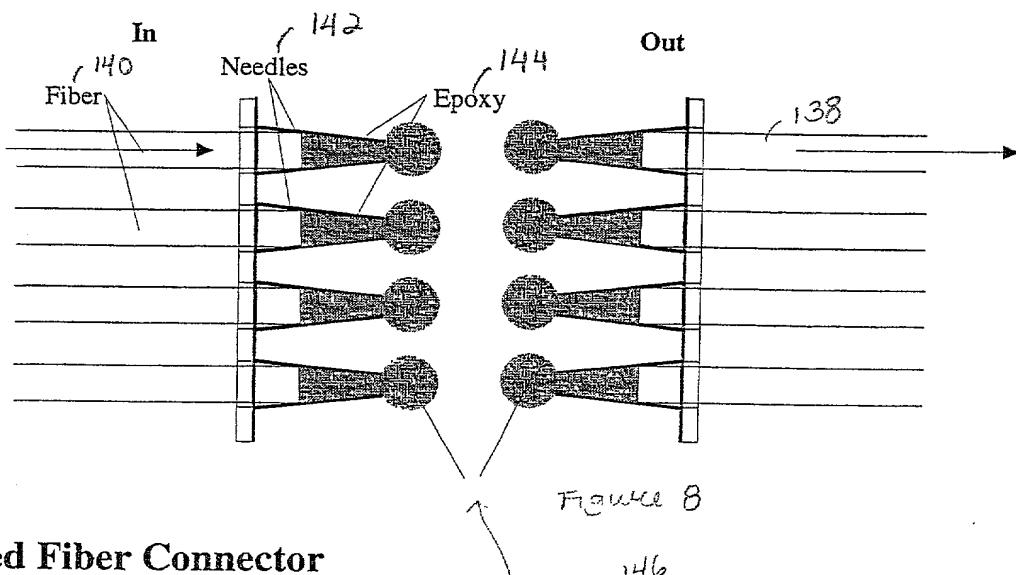
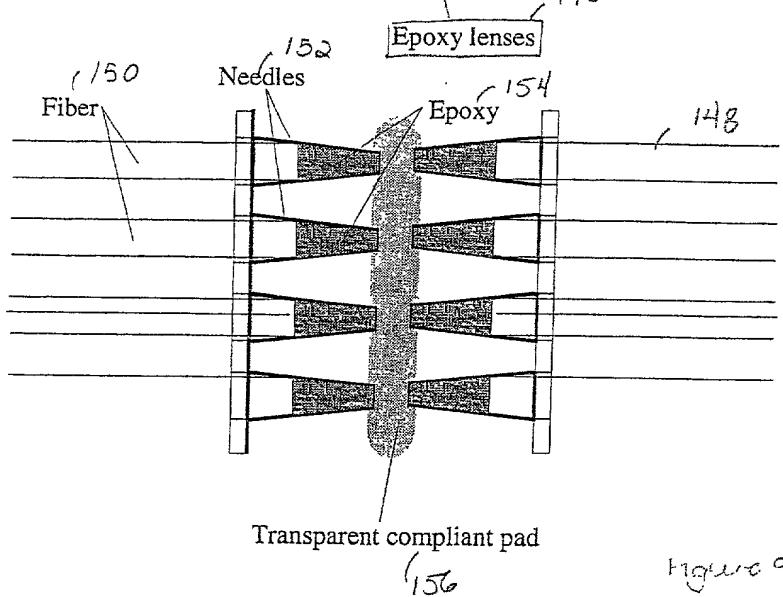


Figure 7B

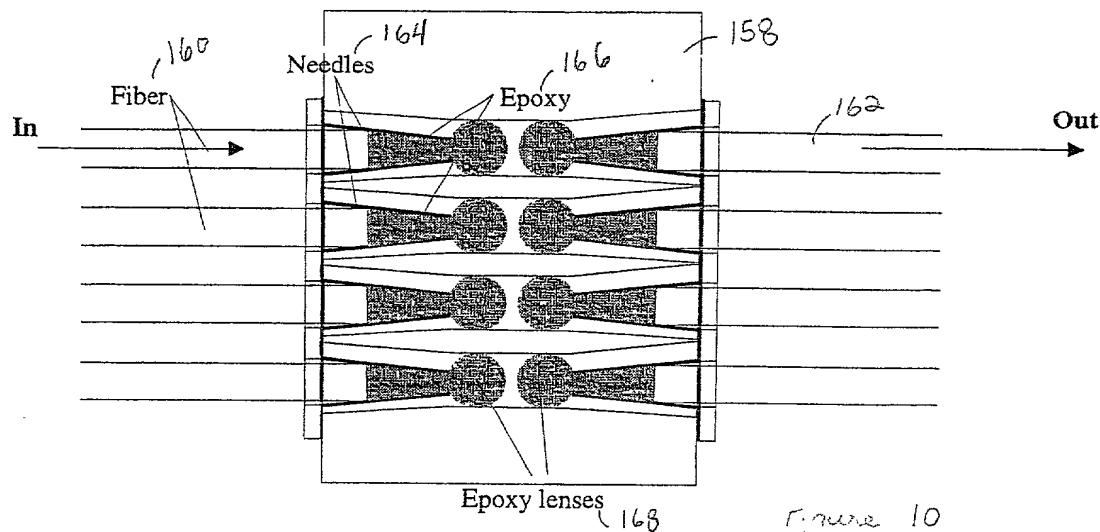
## Lensed Fiber Connector



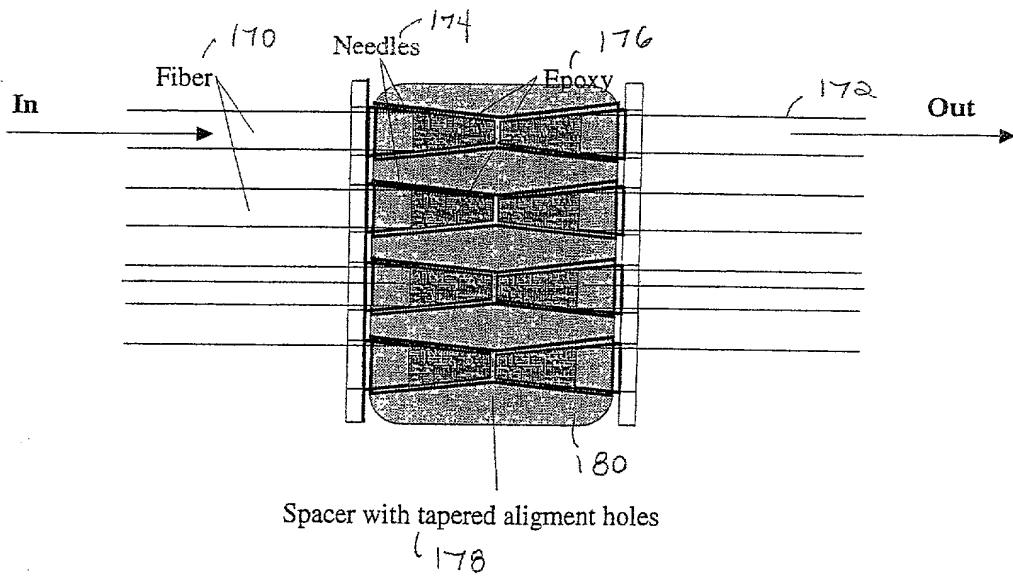
## Un-lensed Fiber Connector



## Lensed Fiber Connector w/ Alignment Spacer



## Un-lensed Fiber Connector w/ Alignment Spacer



Fiber w/ Sensor Plug

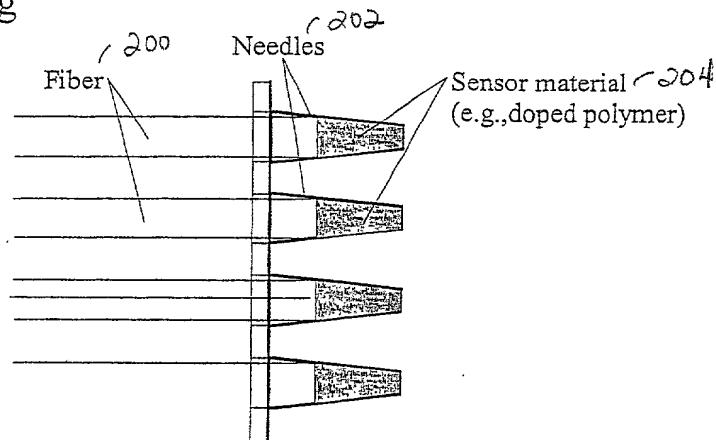


Figure 12 A

Fiber w/ lens-shaped sensor element

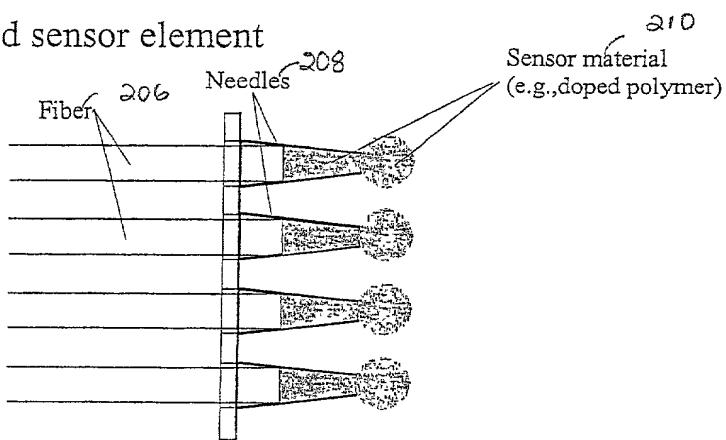


Figure 12 B

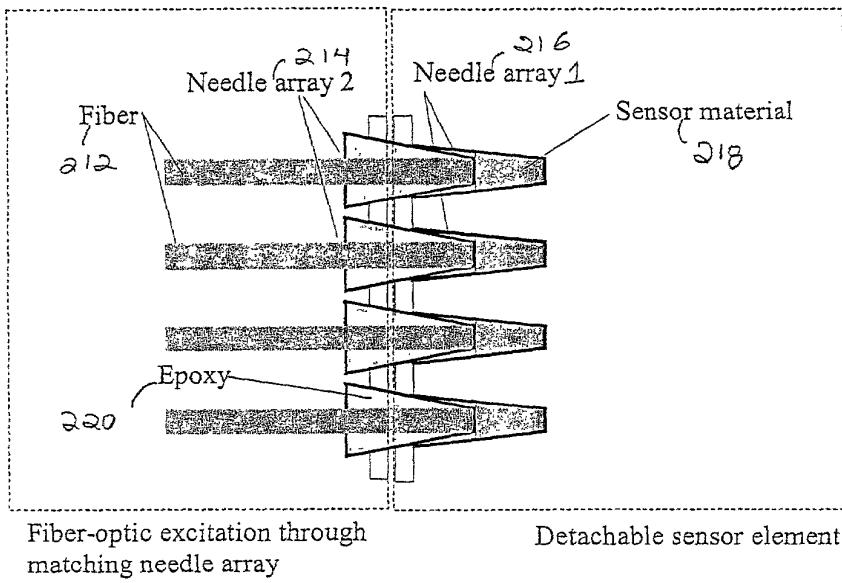


Figure 12C